Safety Data Sheet AMMONIUM SULFIDE 10% Solution

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SECTION 1: Identification

GHS Product identifier

Product name	AMMONIUM SULFIDE 10% Solution

Other means of identification

AMMONIUM SULFIDE 10% w/v Solution LR
Ammonium bisulfide solution,
Ammonium hydrosulfide solution,
Ammonium sulfhydrate solution

Recommended use of the chemical and restrictions on use

Textile industry, photography (developers), colouring brasses, bronzes, iron control in soda ash production, synthetic flavors, lubricants; laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, oral, Cat. 4
- Serious eye damage/eye irritation, Cat. 1
- Flammable liquids, Cat. 3

- Skin corrosion/irritation, Cat. 1B

GHS label elements, including precautionary statements

Pictograms

Signal word **Danger**

Hazard statement(s)

H226	Flammable liquid and vapor
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
AUH031	Contact with acids liberates toxic gas

Precautionary statement(s)

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof [electrical/ventilating/lighting/...] equipment.
P242	Use non-sparking tools.
P243	Take action to prevent static discharges.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER/doctor/physcian if you feel unwell,
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physcian
P363	Wash contaminated clothing before reuse.
P370+P378	In case of fire: Use agents recommended in Section 5 of SDS for extinction
P403+P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 68.14

Components

Component	CAS no.	Concentration
Water (EC no.: 231-791-2)	**7732-18-5**	**<= 90 % (weight)**
CLASSIFICATIONS: No data available. HAZARDS: No data available.		
Ammonium sulfide (EC no.: 235-223-4)	**12135-76-1**	**< 10 % (weight)**
CLASSIFICATIONS: Acute toxicity, dermal, Cat. 4; Acute toxicity, oral, Cat. 3; Skin corrosion/irritation, Cat. 1B. HAZARDS: H301 - Toxic if swallowed; H312 - Harmful in contact with skin; H314 - Causes severe skin burns and eye damage.		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	First Aid Facilities: Maintain eyewash fountain in work area.
If inhaled	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Consult a physician.
In case of skin contact	Wash affected areas with copious quantities of water immediately. Remove contaminated clothing and wash before re-use. Seek medical attention.
In case of eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek medical advice.
If swallowed	Rinse mouth thoroughly with water immediately. DO NOT INDUCE VOMITING. Seek immediate medical advice.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Unsuitable Extinguishing Media: Do not use carbon dioxide as flammable, toxic hydrogen sulfide gas can be generated.

Small fire: Use dry chemical or water spray.
Large fire: Use water spray, fog or foam - Do NOT use water jets.
If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out. Avoid getting water inside the containers.

Specific hazards arising from the chemical
Hazards from Combustion Products: Emits toxic, poisonous fumes of hydrogen sulfide if heated. If ignited irritating sulfur dioxide gas will form.

May be ignited by heat, sparks or flames. Vapours may form explosive mixtures with air. Vapours may travel to source of ignition and flash back. Most vapours are heavier than air and will spread along the ground and collect in low or confined areas (drains, basements,tanks). Many liquids are lighter than water. Containers may explode when heated. Fire may produce irritating, poisonous or corrosive gases. Vapours from run-off may create an explosion hazard. Use flameproof equipment and fittings to prevent flammability risk. Electrically link and ground metal containers for transfer of the product to prevent accumulation of static electricity. Ensure adequate ventilation to prevent an explosive vapour-air mixture. Vapours will travel considerable distances to sources of ignition.

Special protective actions for fire-fighters
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Avoid sources of ignition. Use in ventilated areas or in fumehood. Use non sparkling tools and equipment.

Methods and materials for containment and cleaning up
Large Spillages: Eliminate all ignition sources (no smoking, flares, sparks or flame) within at least 25m. All equipment in handling this product must be earthed. Do NOT touch or walk through this product. Stop leak if safe to do so. Prevent entry into waterways, drains, confined areas.
Vapour suppressing foam may be used to control vapours. Water spray may be used to knock down or divert vapours.
Absorb spill with earth, sand or other non-combustible material. Use clean, non-sparking tools to collect material and place it in loosely-covered metal or plastic containers for later disposal.
SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling
Do not breathe vapour. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Use in well ventilated areas away from all ignition sources. In case of insufficient ventilation, wear suitable respiratory equipment. Wear suitable protective clothing. Keep material away from sparks, flames and other ignition sources.

Conditions for safe storage, including any incompatibilities
Corrosiveness: Corrodes metals including copper, zinc and other alloys. Corrosive to the mucous membranes lining the respiratory and digestive tract.

Store in well ventilated area. Store away from sources of heat or ignition. Store in a cool,dry place. Keep containers securely sealed and protected against physical damage. Hygroscopic.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against
chemicals should comply with AS 3765 Clothing for Protection Against Hazardous
Chemicals.

Hand Protection: Ensure hand protection complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection
Footwear: Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection: Wear suitable protective clothing to avoid skin contact. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Liquid
Appearance	Colourless to yellow liquid.
Color	Yellow colour intensifies with age due to formation of some polysulfide.
Odor	Odour of hydrogen sulfide <qt>rotton eggs<qt> and ammonia.
Odor threshold	0.13ppm
Melting point/freezing point	No data available.
Boiling point or initial boiling point and boiling range	No data available.
Flammability	FLAMMABLE.
Lower and upper explosion limit/flammability limit	Flammable Limits - Lower: 4 Vol% Flammable Limits - Upper: 46 Vol%
Flash point	No data available.
Explosive properties	No data available.
Auto-ignition temperature	No data available.
Decomposition temperature	No data available.
Oxidizing properties	No data available.
pH	~9.5 (200 g/l, H2O, 25 °C)
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Very soluble in hot and cold water. Solubility in Organic Solvents: Soluble in ethanol.
Partition coefficient n-octanol/water (log value)	No data available.
Vapor pressure	450 mmHg
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: ~1.0 g/ml (@ 20°C; water = 1).
Relative vapor density	2.3 (air=1)
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

Reactivity
Reacts with incompatible materials

Risk of ignition. Vapours may form explosive mixtures with air

Chemical stability
Ammonium sulfide slowly produces hydrogen sulfide and ammonia in the presence of moisture. Contact with acids liberates toxic, extremely flammable gas - hydrogen sulfide.

Possibility of hazardous reactions
Reacts with acids to form hydrogen sulfide, a toxic, flammable gas.

Conditions to avoid
Avoid storing in direct sunlight and avoid extremes of temperature.

Heat, flames and sparks.

Incompatible materials
Strong oxidizing agents, strong bases, alkalies, strong acids, copper, brass, bronze, zinc, aluminium and other alloys.

Hazardous decomposition products
Hydrogen sulfide (poisonous), ammonia, sulfur dioxide and nitrogen oxides.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Ingestion: Ingestion can be fatal. Corrosive and toxic to gastroinestinal tract. Severe irritation and burning sensation of mucous membranes of the mouth and stomach. Symptoms include of abdominal spasms, vomiting, dullness, headache, nausea, cyanosis, respiratory depression, unconsciousness, tremors and death. Other symptoms experienced are similar to inhalation.

Inhalation: Inhalation can be fatal. Vapours are corrosive and are a strong irritant to the mucous membranes and respiratory tract. Inhalation results in spasms, inflammation and edema of the larynxand bronchi, chemical pneumonitis, pulmonary edema and death. Symptoms consist of sore throat, coughing, shortness of breath, laboured breathing (lung oedema), wheezing, burning sensation, headache, nausea and vomiting. Low concentrations at 20ppm, initiates the irritation to the mucous membranes of the eyes and respiratory tract, providing a clear indication of hydrogen sulfide exposure. Concentrations of hydrogen sulfide above 50 ppm may cause headache, insomnia, nausea, sore throat, dizziness, drowsiness, and pulmonary edema. Above 150ppm the toxic gas employs a paralysing effect on the olfactory apparatus (chemical function centre of the brain). Above 600 ppm for 30 minutes can cause drowsiness, headache, dizziness, anxiety, hyperpnea (rapid deep breathing), rapid collapse, respiratory inhibition and death as hydrogen sulfide is rapidly being absorbed through the lung-blood barrier and into the circulatory system.

// ----- From the Suggestion report (10/01/2024, 4:17 PM) ----- //
The ATE (oral) of the mixture is: 1000 mg/kg bw

Skin corrosion/irritation
Skin absorption may be fatal. Contact with the solution results in severe destruction (corrosive) to the skin due to hydrogen sulfide poisoning. Symptoms include of irritation, redness, pain and burns. Strong irritant. Severe over-exposure can result in death.

Serious eye damage/irritation
Contact with vapours causes burns to the eyes. Risk of serious damage to eyes. Vapours can cause irritation with symptoms include redness, pain and blurred vision of the eyes.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available.

Reproductive toxicity
No data available.

Summary of evaluation of the CMR properties
No data available.

Specific target organ toxicity (STOT) - single exposure
No data available.

Specific target organ toxicity (STOT) - repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
Chronic Effects: Serious cases due to prolonged and over exposure may result in unconsciousnes, respiratory collapse and death. Decomposition products may affect the nervous system.

SECTION 12: Ecological information

Toxicity
Environmental Protection: Runoff from fire control or dilution water may pollute waterways.

Mobility in soil
No mobility data available for this product.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Waste treatment
Neutralise to pH 6-8.

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 2683
Class: 8, 3, 6.1
Packing Group: II
Proper Shipping Name: AMMONIUM SULFIDE SOLUTION

Hazchem emergency action code (EAC)
2X

IMDG
UN Number: 2683
Class: 8, 3, 6.1
Packing Group: II
EMS Number:
Proper Shipping Name: AMMONIUM SULFIDE SOLUTION

IATA
UN Number: 2683
Class: 8, 3, 6.1
Packing Group: II
Proper Shipping Name: AMMONIUM SULFIDE SOLUTION

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: NS

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

Preparation information
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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)